

ABSTRACT OF THE DISCLOSURE

The present invention overcomes problems associated with switch isolation, noise and crosstalk suppression, insertion loss, spurious reflections, wavelength tolerance, and compactness that are present in varying degrees in other add/drop systems. The present invention includes devices or components that include, but are not limited to high efficiency switchable gratings.

In one embodiment of the invention, each of the "base" gratings have substantially identical spatial frequencies and each of the "vertex" gratings have substantially identical spacial frequencies. However, the "vertex" gratings have higher grating frequencies than the "base" gratings. In another embodiment of the invention, the "base" and "vertex" gratings have substantially the same grating frequencies. Further embodiments of the invention, for example, deal with multiple add/drop grating pairs, variations of fixed and switchable gratings, the use of grating pairs to spatially separate the wavelength division multiplexed components of input beams into individual beams, and the replacement of lenses and waveguides with detectors or emitters.